Non-Financial Indicators of the Construction Business Management Effectiveness Evaluation

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Abstract. The article deals with scientific approaches to understanding the concept of "efficiency" of an organization, in particular from a management point of view. The main problems that prevent the successful evaluation of the effectiveness of modern construction company management are highlighted. Authors proposed a methodology for evaluating the effectiveness of management activities that can be implemented in modern Ukrainian construction company. It is shown that although the problem of performance evaluation has been studied in various Ukrainian studies, the scientific results do not have certain instructions that could be implemented in the practical directions of today. The set of partial financial and non-financial indicators, which should be measured, is generalized to form strong prerequisites for an objective and independent evaluation of the activities of construction company executives. The performance evaluation of the management subsystem includes the effectiveness assessment of management personnel, the effectiveness of management technology, the effectiveness of management organizational structure of. Among the indicators for assessing the effectiveness of management as an integrated set of management and managed subsystems are indicators: the effectiveness of organizational culture, the effectiveness of managing operational activities, personnel, financial activities, marketing, investment and innovation activities. It is proved that financial indicators are the overwhelmingly significant part of the performance evaluation indicators of modern construction company. Non-financial indicators receive less attention even at the theoretical level, although they remain an integral part of a comprehensive management assessment. Among the reasons for the unpopularity of non-financial indicators, the authors identified: the lack of quantitative non-financial indicators of a uniform dimension; the blurry and uncertainty of information support, sources for calculating non-financial indicators; complexity of obtaining initial data; failure to fulfil part of the non-financial indicators of the criterion function, which leads to ambiguity in the interpretation and evaluation of the results. The value of non-financial indicators is seen not only in supplementing the financial in creating a more objective picture, but also in exposing the root causes of obtaining the ultimate construction company financial results.

Keywords: management effectiveness, effectiveness assessment, non-financial indicators, financial indicators, construction company.

1 Introduction

The problem of assessing the effectiveness of managerial activity over the last decades has caused controversy among a wide range of scholars. Economists have taken a number of approaches to understanding and solving this problem, among which, however, one dominant has not yet been observed.

In today's economic literature, there are many scientific approaches, complex and specific ways of calculating the effectiveness of management. According to researchers Y. Lapygin and A. Ursul (Mann, 2016; Volkova, 2009), the effectiveness of management is the result of the relationship between cost (efficiency) and efficiency. An alternative is A. Malytskyi's theory, which proposes to consider control efficiency as a synthesis of potential, realized and achieved efficiency (Malitskyi, 2008).

Non-financial indicators of management effectiveness at foreign construction company are determined and evaluated in the framework of specialized questionnaire techniques intended for self-assessment by managers. One of them is L. Svatushke's technique (Alekseeva, 2016), according to which the manager himself determines the real level of managerial efficiency by evaluating the elements of his activity. The same principle is based on the questionnaires of G. Shchokin and V. Stepanov (Shuldyk, 2014, Dzwigol,.2019).

Contrary to best practice a)broad, the importance of applying non-financial performance to management is constantly ignored in the scientific literature of Ukraine – the focus is on the financial aspect – and the available research is selective or overly schematic. A scientific study is needed that would, by synthesizing the findings, give an idea of a non-financial way of evaluating management.

2 Purpose of the article

The purpose of the article is to formulate scientific and theoretical bases for evaluating the effectiveness of management activities using non-financial indicators.

3 Research Methods

Methods of research: analysis – in the detection of multiple views in scientific literature on the concept of managerial effectiveness; abstraction – when trying to isolate system of assessment of construction company management from its environment; generalization – when forming a comprehensive list of different types of indicators that form the basis of management evaluation; comparison – when formulating a fundamental difference in the interpretation of concepts.

4 Results

The intuitive notion of efficiency is often perceived as equivalent to quality or success (profitability, efficiency), but in a scientific sense, efficiency is rigidly defined as the ratio of a useful result (effect) to the cost (in any expression) of achieving it. The negative (loss) and positive (achievement) impact of a purposeful action, process or decision are compared, and the result of the comparison is quantified, compared to established norms or standards and used to consider the feasibility of making changes to the object of performance evaluation. In this context, it is easy to determine the effectiveness of management activities as the ratio of the overall performance of managers (implementation of management functions, development and implementation of necessary decisions, achievement of different types of goals set, the realization of potential organizational capabilities) to the costs associated with obtaining these management results (Chernysh, 2018; Dudukalo, 2012).

The concept according to which the effectiveness of management is characterized by the comparison of results and costs of the management system, researchers call functional (Guraluk, 2010) (sometimes referred to as "economic", but such a term in this context is inappropriate, since it leads to confusion with cost-effectiveness as a type of efficiency alongside technical and social, characterized by cost measurement of results and costs).

The result of managerial work within the functional concept is measured by both positive changes in indicators that relate to both directly managerial work (complexity of managerial work, number of managerial staff, loss of management time, staff turnover), and organizational results. The simplest and most basic approach to understanding the effectiveness of management defines it as the ratio of the performance of managers to the costs associated with the implementation of this activity, ie it is a characteristic of the effect from the point of view of the optimality of use of resources – material, financial, labor, information (Kretova, 2014). However, practical experience, first, requires the deepening of this approach and its specification, and secondly, it reveals the conceptual shortcomings of such a methodology for calculating management effectiveness, which is based only on the mathematical correlation of effect and cost.

According to Y. Lapygin and A. Ursul, management efficiency is the result of the relationship between cost and required efficiency, where cost efficiency is the inverse to the academic version of efficiency (the ratio of costs to the achieved result), and effective – the ratio of the actual achieved result to the goals (Mann, 2016; Volkova, 2009). These types of performance are related: need determines the productive and the productive – the cost.

Somewhat different is A. Malytskyi's opinion on this problem. He proposes to consider management effectiveness as a synthesis of potential, realized and achieved (actual) efficiency (Malitskyi, 2008). Performance achieved involves determining the ratio of the result to the resources expended and comparing the obtained data with the normative values. Realized efficiency characterizes the degree of achievement of the goals of construction company (management apparatus, specific manager) and is defined as the ratio of each actual indicator to the planned. The potential management effectiveness is characterized by construction company ability to respond to new market demands in a timely and accurate manner and to adapt to the changing environment. Such ability depends on the quality of work of the management apparatus in the development and implementation of strategic and tactical plans, accounting and control of construction company.

From the definitions of the components of efficiency in two approaches, it can be seen that in the cases of necessary and effective and, accordingly, potential and realized efficiency, this term loses its primary scientific meaning and acquires the meaning of efficiency, degree of achievement of goal. This semantic transition is characteristic of vast majority of performance metrics, because of what is actually mixed, such as a manager's achievements and his ability to make good use of available resources.

However, determining the dependence of the results on the relevant costs to assess management effectiveness hampers a number of problems. First, it is not possible to establish a strong correlation between specific costs and outcomes given the presence of external and incidental situational factors affecting management output.

Second, efficiency as a mathematical relation does not in itself reveal the potential for improving the quality of work. In the case of incomplete use of resources and a correspondingly reduced result, the effectiveness of the manager's activity will be practically or completely similar to the effectiveness of his activity with full utilization of resources and, accordingly, a higher result. This problem is particularly relevant for small firms that are in the early stages of implementing systems for assessing management effectiveness and have not yet developed sound criteria for interpreting the values obtained.

Third, not all managerial outcomes can be quantified at any given time – and their qualitative expression makes it impossible to divide arithmetically or to subject the process of comparing effect with costs. Awareness of these problems forced researchers to seek approaches to defining the notion of control efficiency that would not relate to the classical mathematical definition of efficiency.

Targeted approach to determining the effectiveness of management is a concept according to which the organization's activities are aimed at achieving certain goals, and the effectiveness of management is characterized by the degree of achievement of these goals. The criteria used to reflect the result of management activities, comparing their values with those desired, are the following: sales volume of products (services); market share; the amount of profit and its types; volume or diversification of the range; sales growth rate; quality of products (services).

In essence, the target approach is identical to the effective efficiency as a component of the Lapygin-Ursula approach and the realized efficiency of A. Malytskyi. However, despite its attractiveness and simplicity, the application of the target concept is associated with a number of problems, the most significant of which are: the degree to which the goal is met is difficult to measure if organization doesn't produce tangible goods and/or is non-profit making; controversial is the existence of a general set of uniquely attainable, defined "official" goals of organization (not an abstract credo or general purpose) (Yakovets, 2013). Composite is close to the goal approach. According to this concept, the effectiveness of management is determined by the degree of influence of management work on the organization as a whole, the degree of participation of managers in such activities (Malitskyi, 2008).

An approach to determining the effectiveness of management based on the achievement of a "balance of interests" (also a behavioral approach) implies that construction company activities are aimed at meeting the expectations, expectations and needs of all individuals and groups interacting with the organization and with construction company. Determining the effectiveness of management is based on measuring the degree of satisfaction of the needs of all entities interested in the results of the organization – external (suppliers, consumers, owners, the state) and internal (units, groups, individual employees). The main criterion for assessing the effectiveness of management under this concept is to minimize the satisfaction gap between all those interested in the results of construction company of the groups. Methods for both direct calculations and indirect evaluation (peer reviews, questionnaires, etc.) are used to determine the indicators that characterize the achievement of managers of this criterion.

According to system concept of management effectiveness, the results of construction company activities are significantly influenced by environmental factors, and therefore the effectiveness of management is characterized by degree of adaptation of construction company to its external environment. The system concept is based on two principles:

1. The survival of construction company depends on its ability to adapt to the demands of the environment.
2. In order to meet these requirements, the full cycle of "inputs – process – outputs" should be the focus of management (Yakovets, 2013).

The notion of effectiveness of management activities is clearly not one of those in which researchers show a convergence of opinion. Such inconsistency causes the complexity of any scientific consideration of the management system itself with the use of precise categories, the complex and heterogeneous nature of the management process, the considerable situational nature of the work of construction company operating there, evaluation and goal setting, as well as the huge diversity of social and production and economic results that are not reduced to a single meter.

The extremely high degree of interpenetration of the work of managers and their subordinates makes it impossible to consider the results of the management system in isolation from the managed system. In international practice, to assess the effectiveness of management is proposed to use indicators that do not measure the effectiveness of managers as individual employees, constituent staff of construction company, but instead serve to evaluate the effectiveness of the whole enterprise as a direct consequence of managerial work. Obviously, in such a case, it is advisable to talk about the effectiveness of purely top management, professionals who shape the internal environment of construction company and determine the direction of its activities.

Approaches to defining the concept of performance can be dramatically different, so there is a phenomenon of convergence or identification of these concepts. To avoid any misunderstandings, it is worthwhile to point out the semantic aspects of using them when evaluating management performance.

The criterion of effectiveness is a certain characteristic, on the basis of which the conclusion is made about the effectiveness or inefficiency of the investigated object (another reason may be a comparison with the corresponding values of competing firms, values of previous periods, targets, expected or forecast values). In science, the wording "evaluation of the effectiveness of management by criterion..." is accepted. For example, the maximum effect derived from each unit of cost (maximum result estimate) or the minimum cost per unit of effect (minimum cost estimate) may serve as a feature.

In the literature, the evaluation of management effectiveness is often reduced to the evaluation of construction company, through the analysis of various financial indicators such as profit, profitability, market value of construction company (Malitskyi, 2008; Perchuk, 2013; Buyan, 2012). In the United States, recommendations for assessing the performance of construction company are set out in the Statement on Management Accounting Measuring entity performance (SMA 4D) standard of management accounting. This document proposes to use such indicators to evaluate the effectiveness of the company (and its management) (Dudukalo, 2012): net profit and earnings per share (EBIDTA, EPS); company value (MV, MVA); cash flow indicators (CVA, CFROI, etc.); return on Investment (ROI); residual income (RI).

These indicators are the most common and indirect way to determine the effectiveness of management. They relate to the situation of construction company on the largest scale, consider only the most significant manifestations and the end results of its activity. All cause and effect relationships that led to the values obtained, most aspects of internal activity and management decisions found in the global results remain unaddressed. Therefore, there is a need to consider a system of diversified indicators that affect all components of management activities and, in their totality, provide an objective and weighted picture of management processes, their comprehensive presentation.

The global problem of evaluating management effectiveness is that governance is not, by its nature, a self-contained independent system, a vacuum phenomenon. It is wrong to consider the results of the management of the result of purely managerial activity, because in reality the finished product form is provided by ordinary employees, not managers (Yakovets, 2013).

Management effectiveness is often directly dependent on the effectiveness of the controllable system, which is why we propose to extend context of analysis of controllability through common indicators that logically include the effectiveness of the subordinate system. Such indicators evaluate activities that cannot be defined as purely managerial; they refer to management as an integral phenomenon, which combines work of managers and subordinates, and indirectly indicate the result of management activities.

We consider it important to note that part of the existing performance indicators focuses on the effectiveness of management as a purposeful process, while the other part – on the face of the manager as an employee, specialist. Although management effectiveness is a direct consequence of the manager's activities, the interpretation of such indicators and the corresponding measures in two cases will be dramatically different (focus on management technology or staff management), so in our view, the use of both types of indicators is necessary for objective the reproduction of the state of affairs in construction company management.

One of the key classification features in dividing management performance is the use of monetary (financial) values in their calculation. This distinguishes between financial and non-financial indicators. Financial indicators have a monetary measure (the result of cash transactions) and are related to the financial results of the enterprise, and to calculate them are data of all applicable types of internal reporting and forms of external audits. Non-financial indicators do not have a monetary measure, money is not involved in their calculation (Bylinska, 2019), instead they are expressed in pieces, percentages, units of time or in qualitative categories.

For clarity, the overall effectiveness of management is divided by marketing, production, financial, innovation, personnel and other components of construction company (Dudukalo, 2012). With this in mind, it is possible to form a list of key performance non-financial indicators for management of various types (Table 1, Table 2).

Table 1. Non-financial indicators to evaluate the performance of the management subsystem

Composite assessments	Indicator
Evaluation of the effectiveness of management personnel	The coefficient of quantitative and qualitative staffing of management staff The share of management personnel with over 5 years of experience in the enterprise and in the industry Sustainability ratio of management staff The staff turnover factor Management staff replacement rate
Evaluation of the effectiveness of management technology	The coefficient of efficiency of work with documents and other sources of information Information utilization rate
Evaluation of the effectiveness of management technology	Coefficient of coverage of automation control functions The coefficient of growth of technical equipment of administrative work
Evaluation of the effectiveness of the organizational structure of management	Coefficients of observance of standards of management of links of management Duplication ratio of functions

Sources: developed by author based on source (Dudukalo, 2012)

Table 2. Non-financial indicators to evaluate the effectiveness of management as an integrated set of management and managed subsystems

Composite assessments	Indicator
Assessment of organizational culture effectiveness	The level of organization of the business units Level of work discipline Level of satisfaction with working conditions

	The level of social and psychological climate in the team The level of safety and health protection Level of conditions of social development and social protection of personnel Coefficient of compliance with the environmental performance of operating activities
Evaluation of the effectiveness of personnel management	Coefficient of completeness of implementation of management decisions Coefficients of quantitative and qualitative staffing of the company Coefficient of the staff turnover factor of the enterprise Coefficient of replacement of personnel of the enterprise Assets ratio of current assets
Evaluation of the effectiveness of marketing activities management	The share of production of the enterprise in the national market Coefficient of change in the volume of sales of products The share of high-tech equipment in the total value of fixed assets The growth rate of intellectual property rights

Sources: developed by author based on source (Dudukalo, 2012)

The activity of construction company can be conditionally represented as a chain of results, at each link of which the manager has a direct or indirect influence. Accordingly, each result can be an indicator of the effectiveness of such an impact. However, to increase the objectivity of performance appraisal, it is necessary to consider those results that are as close as possible to the beginning of the chain and affect the formation of each successive link. Therefore, these non-financial indicators relate mainly to the baseline, primary results that, in the course of construction company operation, act as catalysts for the more general ones. Obviously, the lack of product quality, customer satisfaction, or staff productivity can be used as key non-financial indicators of management effectiveness, however, estimating the values of these outputs requires clarifying their factor components (Table 1).

Naturally, financial performance is a major part of management performance indicators. This is due to established traditions to evaluate the activity of construction company based on the data of its accounting, first and foremost, financial statements. Non-financial indicators receive less attention even at the theoretical level, although they remain an integral part of a comprehensive management assessment. Among the reasons for the lower popularity of non-financial indicators are:

1. Absence of quantitative non-financial indicators of uniform dimension, which complicates the process of determining and comparing the result with the data of previous periods, goals, forecast values or indicators of competitors (Melnyk etc., 2011). The issue of establishing non-financial units of measurement has to be considered on a case-by-case basis, which makes it impossible to apply the automation of valuation. For example, for a trading company, the obvious alternative is to measure the sales of products in natural-material form (pieces, tones, etc.), but this approach loses its sense in the presence of at least minimally diversified assortment with different prices or when providing services of different type and complexity. In countries where full-fledged public non-financial reports remain widespread and the samples available are non-standard and predominantly promotional (as in Ukraine), the problem described may

also lead to management attempts to manipulate the non-financial information received for its own benefit (Matkiv, 2015).

2. Uncertainty of information support, sources for calculation of non-financial indicators; the complexity of obtaining the raw data. If the non-financial performance indicators of HRM can be calculated on the basis of generally accepted documents, in order to evaluate the effectiveness of organizational culture, the company has to use third-party services, improve the formalization of reporting, for which no formal regulations have been developed or develop their own methods (observation, polling, fidgeting) and submitting information in non-standardized forms. It becomes apparent that such processes require additional costs (as an option, additional staffing) and the reliability of the data thus obtained is reduced.

3. Failure to fulfill part of the non-financial indicators of the criterion function, which leads to ambiguity in the interpretation and evaluation of the results obtained (Dudukalo, 2012; Melnyk etc., 2011). Measuring the degree of satisfaction of the interests of the groups involved in the work of construction company should be combined with measuring the costs of achieving a certain level of satisfaction, that is, with the involvement of the financial component; performance indicators of the manager with information sources should be supplemented by the values of completeness of processing and use of these sources; when assessing formalization or structural centralization, it is necessary to make adjustments to the type of activity, psychotypical staff composition, timeframes for completing tasks, etc.

Despite the significance of the above problems, researchers of the issue of non-financial performance indicators unanimously argue that their application is still absolutely necessary for the full and comprehensive reproduction of the state of management and business in the enterprise as a whole. Moreover, often the value of non-financial indicators is seen not only in supplementing the financial when creating a more objective picture, but also in exposing the root causes of obtaining the final financial results of construction company.

Thus, N. Bilynska states “Non-financial aspects of an enterprise's activity potentially affect its financial performance, which makes them an important source of strategic planning and forecasting of its results” (Bylinska, 2019).

The estimation given in Table 1 non-financial performance management allows you to diagnose most of the positive and negative results of management: staff efficiency, product quality, its compliance with current and future requirements, the number of contacts with customers, the introduction of new technologies. These results will lead to financial consequences for construction company in the future, such as: volume and profitability of sales, level of net profit, market share, and financial independence.

Conversely, to find out the possible reasons for changing the financial performance, you can refer to non-financial values for the same period and for previous periods. It is obvious that, for example, a decrease in sales volumes (financial indicator) may be facilitated by a drop in the quality of products produced under conditions of poor labor discipline or staffing (non-financial indicator), and the loss of market share (financial indicator) may be caused by low values implementation of management decisions (non-financial indicator) on the introduction of innovative technologies.

This link between non-financial and financial performance is enshrined in the Balanced Scorecard (BSC), a strategic performance management tool developed by American researchers R. Kaplan and D. Norton in the early 1990s (Popa etc., 2009; Radionova, 2016). BSC is used to provide the functions of gathering, systemizing and analyzing the information needed to make strategic management decisions, which assesses the performance of the company, its divisions and CEO (heads, executives) on the basis of four balanced parameters: shareholder relations (external finance), relationships with clients, in-house business processes, as well as level of innovation and personnel training (Lyashenko etc., 2014). Last 3 parameters (which are almost entirely composed of non-financial indicators) provide the fourth component – long-term financial success of the company:

- customer relations: number of customers, market share, customer loyalty index, customer satisfaction index;
- internal business processes: timely delivery, production cycle efficiency (MCO), level of labor productivity, production preparation time, the impact of administrative errors;
- opportunities for training and staff development: staff turnover, number of employees who have undergone training or advanced training, time for training, employee satisfaction index.

5 Conclusions

These performance indicators provide an overview of possible ways of non-financial management system evaluation. Development or choice of specific indicators, the method of their calculation (including the possibility of providing them with financial or non-financial form), as well as the establishment of normative values and importance of indicators in the final assessment is in accordance with a number of situational characteristics of construction company: industry and type of activity, spectrum partners, the size of construction company and its position in the market, legislative requirements, foreign policy conditions, management strategy, plans, general values.

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